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Rubaltelli, Enrico; Pittarello, Andrea

Published in:
Personality and Individual Differences

DOI:
[10.1016/j.paid.2017.11.036](https://doi.org/10.1016/j.paid.2017.11.036)

IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.

Document Version
Publisher's PDF, also known as Version of record

Publication date:
2018

[Link to publication in University of Groningen/UMCG research database](#)

Citation for published version (APA):
Rubaltelli, E., & Pittarello, A. (2018). Negative emotion and trait emotional intelligence in reaction to terrorist attacks. *Personality and Individual Differences*, 123, 247-252. <https://doi.org/10.1016/j.paid.2017.11.036>

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Negative emotion and trait emotional intelligence in reaction to terrorist attacks

Enrico Rubaltelli^{a,*}, Andrea Pittarello^{b,1}

^a Department of Developmental and Socialization Psychology, University of Padova, Italy

^b Department of Organizational Psychology, University of Groningen, The Netherlands

ARTICLE INFO

Keywords:

Emotional intelligence
Terrorism
Emotions
Risk perception

ABSTRACT

Deadly terrorist attacks shook Europe and generated significant emotional turmoil well beyond people directly harmed. At the same time, large waves of immigrants are seeking help in many European countries. In this climate, we investigated how negative emotion elicited by terrorist attacks shapes estimates of future attacks, the perception of immigrants, and opinions toward immigration among respondents living in a small town in Northern Italy. We found that stronger negative emotion corresponded with the belief that future attacks would be more likely to occur in respondents' hometowns than in farther locations, with a greater tendency to see immigrants as threatening, and lower willingness to accept them. Importantly, we found that this pattern was more pronounced for individuals with low (vs. high) trait emotional intelligence.

Brutal terrorist attacks have hit various European cities in recent years, generating emotional reactions such as anger, fear, worry, vulnerability, and threat (Burns & Slovic, 2007; Lerner et al., 2003) well beyond the people who were directly harmed. Such a boundless effect – which sets terrorism aside from other hazards – raises the challenge of understanding how negative emotion influences people who are not directly touched by attacks. To tackle this question, we conducted a survey among the general population in Padova, a town in Northern Italy. Specifically, we investigated how negative emotion elicited by attacks affects people's 1) estimates of the likelihood of future attacks, 2) perceptions of immigrants, and 3) opinions about immigration. We also examined whether the impact of emotion on these variables depends on how successfully people recognize and utilize emotional information, namely their trait emotional intelligence (henceforth, trait EI; Petrides & Furnham, 2003).

1. Emotions and terrorism

Abundant evidence shows that terrorist attacks trigger fear, anxiety, vulnerability, and a sense of threat (Fredrickson, Tugade, Waugh, & Larkin, 2003; Lerner, Gonzalez, Small, & Fischhoff, 2003). Importantly, emotions also affect how people perceive and evaluate risks. One theoretical model that explains why this happens is the affect heuristic (Slovic, 2004), which suggests that people judge risk based on how they feel about a specific situation or hazard. Put simply, people will

perceive a certain activity as being riskier when they experience negative (vs. positive) feelings about it.

Research on the affect heuristic has mainly focused on integral affect—that is, the emotional state elicited by the “mental representation of objects” (Västfjäll, Peters, & Slovic, 2008, p. 64). Not only are mental representations of attacks particularly vivid in people's minds, but they also trigger negative emotions such as worry and shock (Fahmy, Cho, Wanta, & Song, 2009) that are subsequently used to judge future risks (Slovic, 2004). Affective information drives judgments and behavior even more when an event is widely covered by the media, as has happened with terrorist attacks that occurred in Europe and other Western countries. Dreadful images and stories of what witnesses of attacks saw and experienced create vivid emotional cues that people will use when they assess the likelihood of future attacks (Sunstein, 2002).

However, the extent to which such images influence people's estimates of the likelihood of an attack depends on how similar past events are to the location for which this judgment is given. This means that people will estimate future attacks as highly likely in Europe or in geographical locations that include potential targets such as large cities (e.g., Italy). When making these judgments, people are likely to remember many previous events in similar cities or areas and end up thinking that attacks are very likely to happen in the near future.

In contrast, this is less likely to happen for specific towns (i.e., Padova, a small city in the north of Italy) that are not comparable to the

* Corresponding author at: Department of Developmental and Socialization Psychology, University of Padova, Via Venezia, 8, 35131 Padova, Italy.

E-mail addresses: enrico.rubaltelli@unipd.it (E. Rubaltelli), a.pittarello@rug.nl (A. Pittarello).

¹ Faculty of Behavioural and Social Sciences, University of Groningen, Grote Kruisstraat 2/1, 9712TS Groningen, The Netherlands.

cities in which past attacks took place. In this case, people's estimates will be driven by their general emotional reactions to terrorism. If people experience negative emotion when thinking about terrorist attacks, they will expect these events to be about as likely in small towns as in areas including major cities (Finucane, Alhakami, Slovic, & Johnson, 2000). Otherwise, if their negative emotion is not particularly high, people will perceive an attack in a local town as being less likely than in other areas with large cities.

Finally, based on past work showing that familiarity with certain stimuli or situations tends to decrease risk perception (Song & Schwarz, 2009), people should perceive an attack in their local town (Padova) as being less likely to happen than in larger areas such as the whole country (Italy) or continent (Europe). We thus hypothesize that:

H1. Negative emotion elicited by thinking about attacks should correspond to higher estimates of the likelihood of future attacks when people are asked about their local hometown rather than about larger locations that include major cities.

The emotions in reactions to attacks also affect public opinion of immigrants because people perceive a connection between terrorism and immigration. Hellwig and Sinno (2016) found that security fears shape attitudes toward immigrants, and Levine and Campell (1972) showed that negative emotions in the aftermath of an attack increase xenophobia. Finally, Huddy et al. (2002) showed that terrorist attacks can lead people to exhibit biases and negative views about other out-groups, and Bar-Tal and Labin (2001) found that emotions related to terrorist attacks are with negative stereotypes toward member of the out-group.

The work outlined so far clearly shows that attacks trigger negative emotions, which in turn shapes people's perceptions of out-group members. At the same time, attacks also influence how people feel about and perceive these persons. For instance, Legewie (2013) reports that after the 9/11 attacks, people started to see immigrants as a threat to security and social order, and Echebarria-Echabe and Fernandez-Guede (2006) found increased negative attitudes toward Muslims after the 2004 Madrid bombings. Taken together, these findings suggest the possibility that negative emotion leads people to perceive all immigrants – and not only those who share the same religious affiliation as the attack perpetrators – as dangerous. Support for this prediction comes from a recent work by Bouman, van Zomeren, and Otten (2015), who found that realistic threats led to generalized intolerance toward local members of groups who did not necessarily share the same identity as the threatening individuals. Since those who carry out attacks are – generally – perceived as immigrants, this work suggests that people will tend to see most immigrants as dangerous. This leads us to predict that:

H2a. Negative emotion elicited by terrorist attacks should correspond to a stronger belief that immigrants are threatening.

Relatedly:

H2b. Negative emotion elicited by terrorist attacks should correspond to a lower willingness to accept immigrants in the country.

2. Trait emotional intelligence

Trait EI is defined as a constellation of emotional self-perceptions assessed via questionnaires and rating scales (Petrides, Pita, & Kokkinaki, 2007), and it occupies its own unique location in the personality space, together with two other dominant trait theories: the Big Three (Eysenck, 1967) and the Big Five (Costa & McCrae, 1992) theories.

Research has shown that trait EI moderates the effect of emotion on people's behavior in stressful situations within different settings. For instance, Pittarello et al. (2017) found that people with high (vs. low) trait EI were more successful at managing the emotional distress arising

from moral dilemmas, and Agnoli, Pittarello, Hysenbelli, and Rubaltelli (2015) showed that high-trait-EI individuals were more resilient to failures. Relevant to our work, Mikolajczak et al. (2008) showed that people with low (vs. high) EI were more likely to perceive events as threatening.

Since negative emotion elicited by terrorist attacks corresponds to a heightened perception of risk, it is reasonable to assume that negative emotion will impact people with low trait EI more than it will people with high trait EI. Put differently, being less successful at recognizing and utilizing negative emotional information should lead people with low levels of trait EI to perceive risks as greater than they actually are (Sunstein, 2002), when it comes to both estimating the likelihood of future attacks and judging immigrants.

Thus, we predict the trait EI will moderate the effect of negative emotion on people's estimates of the likelihood of future attacks and opinions toward immigrants and immigration. Formally put:

H3a. Negative emotion will correspond to a greater perceived likelihood of future attacks, especially in one's local hometown rather than in larger locations that include major cities, particularly for people with low trait EI compared to people with high trait EI.

H3b. Negative emotion will correspond to more adverse perceptions and a lower willingness to accept immigrants for people with low trait EI than for people with high trait EI.

3. Method

We recruited 202 respondents (46% female; $M_{\text{age}} = 45.18$ years, $SD_{\text{age}} = 12.02$ years) in Padova, a small city in Northern Italy. The demographic characteristics of our sample reflect the mean age of the population in the province of Padova (44.7 years) and are aligned with the actual prevalence of women (51.4%).² Thus, we believe that our respondents are representative of the population, to an extent. The respondents were randomly approached in the streets during the day, and data collection took place between March 13, 2016, and June 13, 2016. The respondents were asked to complete a survey structured as follows: We first presented them with a list of five emotions (sadness, worry, anger, fear, and stress) and asked them to rate, on a slider scale from 0 to 100, the intensity to which they felt such emotions immediately after thinking about possible terrorist attacks.

From a theoretical standpoint, asking respondents their emotional reactions immediately after they think about attacks is in line with previous work (Fredrickson et al., 2003; Lerner et al., 2003) and allows us to test the specific effect of the integral emotions, rather than the mood, elicited by attacks on respondents' subsequent opinions. Importantly, the order of the questions reduces the possibility that estimating the likelihood of future attacks will increase emotional reactions. Ratings on the emotions showed good consistency ($\alpha = 0.78$) and were thus averaged to create a single score for negative emotion.

In the following section, the respondents were asked to estimate the likelihood of a future attack across three locations: Padova, Italy, and Europe. Answers were given on a 0 to 100 slider scale expressing each probability (0 = not at all likely, 100 = absolutely likely).³

Next, we asked the respondents to rate on a slider scale the extent to which they felt that immigrants posed a threat to Italians' jobs, safety, culture, and religious identity (0 = no threat at all, 100 = very high threat). We averaged these scores ($\alpha = 0.95$) and created a single measure of threat. The following questions asked respondents to rate on a slider scale the extent to which they favored accepting immigrants in Italy as well as preventing them from coming to Italy (0 = not at all

² <http://dati.istat.it/>

³ The verbatim Italian wording was “Per niente probabile” and “Assolutamente probabile”, whose meaning in English corresponds to “not at all likely” and “absolutely likely”.

Table 1
Correlations among study variables and descriptive statistics.

	1	2	3	4	5	6	7	8	9	10	11	Mean	SD
1 – Trait EI	–											155.04	14.94
2 – Age	0.02	–										45.18	12.02
3 – Political orientation	–0.15*	0.17*	–									3.49	0.80
4 – Religiosity	0.05	0.35***	0.12 ⁺	–								3.08	1.15
5 – Attack (Europe)	–0.12 ⁺	–0.02	0.08	0.09	–							82.84	10.00
6 – Attack (Italy)	–0.10	–0.02	–0.07	0.04	0.67***	–						74.08	13.18
7 – Attack (Padova)	–0.21**	0.01	–0.04	–0.06	0.30***	0.50***	–					24.56	17.40
8 – Threat of immigrants	–0.31***	0.06	0.46***	0.17*	0.11	–0.07	0.08	–				42.88	25.39
9 – Acceptance of immigrants	0.32***	–0.09	–0.41***	–0.15*	–0.25***	–0.16*	–0.15*	–0.78***	–			52.69	26.15
10 – Negative emotion	–0.10	0.03	0.11	0.17*	0.33***	0.35***	0.51***	0.08	–0.21**	–		70.74	11.50
11 – Gender	–0.18	–0.12	0.06	0.35	0.15	0.16	0.14	0.25	–0.27	0.38	–		

Note: $N = 202$. Gender is coded as 0 (female) and 1 (male).

* $p < 0.05$.

** $p < 0.01$.

*** $p < 0.001$.

⁺ $p < 0.10$.

Fig. 1. Interaction between trait EI and negative emotion (median split for ease of representation) predicting the estimates of the likelihood of attack in Padova.

favorable, 100 = absolutely favorable). These two items (the second was reverse coded) were highly correlated ($r = 0.91$); therefore, we averaged them and created a single score of acceptance.

At the end of the survey, the participants completed the Trait Emotional Questionnaire Short-Form (Petrides, 2009), ($\alpha = 0.82$), and provided a series of demographic information: age, gender, religiosity (1 = not at all, 5 = very religious), and political orientation (1 = extreme left, 5 = extreme right). See Table 1 for descriptive statistics of the study variables.

4. Results

4.1. Attacks

We conducted a repeated-measure ANOVA to compare the estimates of the likelihood of attacks across Padova, Italy, and Europe, $F(2, 400) = 1853.25$, $p < 0.0001$, $\eta^2 = 0.90$. The results showed that attacks were perceived as more likely to occur in Europe (82.84%) than in Italy (74.07%), $F(1, 200) = 160.58$, $p < 0.0001$, $\eta^2 = 0.45$, or Padova (24.56%), $F(1, 200) = 2289.15$, $p < 0.0001$, $\eta^2 = 0.92$. Furthermore, an attack in Italy was perceived as more likely than an attack in Padova, $F(1, 200) = 1985.51$, $p < 0.0001$, $\eta^2 = 0.91$. A non-parametric Friedman test further showed that the distributions of responses for the three locations were significantly different, $p < 0.0001$. Thus, we conducted separate analyses for each location.

4.1.1. Padova

We conducted a hierarchical linear regression to test the effects of negative emotion, trait EI, and their interaction in predicting the estimated likelihood of an attack in Padova. In the first block, we added as predictors the variables relevant to our hypotheses: negative emotion, trait EI, and their interaction. However, since demographic information can also explain part of the variance in the responses, we added these variables in the second block to assess the robustness of our findings. This approach had the advantage of testing the unique relationship between our key predictors when entered in the first step (unadjusted) and whether their effect remained when adding variables that might be related our criterion (see Bernerth & Aguinis, 2016; Ginges, Hansen, & Norenzayan, 2009). In the first block ($R^2 = 28.7\%$), the results showed a significant effect of negative emotion, $B = 2.53$ ($\beta = 1.68$), $SE = 0.86$, $t = 2.96$, $p < 0.01$, 95% CI [0.847, 4.221], corresponding to a greater perceived likelihood of an attack. The effect of trait EI was not significant, $B = 0.69$ ($\beta = 0.59$), $SE = 0.42$, $t = 1.63$, $p = 0.10$, 95% CI [–0.144, 1.527]. Importantly, the interaction between negative emotion and trait EI was significant, $B = -0.01$ ($\beta = -0.01$), $SE = 0.005$, $t = -2.11$, $p < 0.05$, 95% CI [–0.023, –0.001], showing that negative emotion corresponded to a higher perceived likelihood of an attack, especially for lower levels of trait EI (Fig. 1). In the second block ($R^2 = 28.9\%$), none of the demographic predictors was significant ($p > 0.08$), and including them in the model did not explain significant additional variance, $F(4, 193) = 1.189$, $p = 0.32$.

4.1.2. Italy

We repeated the same analyses on predicting the estimated likelihood of an attack in Italy. There was no difference between the first block—with trait EI, negative emotion, and their interaction ($R^2 = 12.1\%$)—and the second block including the demographic information ($R^2 = 10.6\%$), $F(4, 193) = 0.13$, $p = 0.97$. None of the effects reached significance ($p > 0.09$).

4.1.3. Europe

Finally, when performing the same hierarchical linear regression with the estimated likelihood of an attack in Europe as the dependent variable, there was no difference between the block with trait EI, negative emotion, and their interaction ($R^2 = 10.3\%$) and the block including the demographic information ($R^2 = 9.9\%$), $F(4, 193) = 0.81$, $p = 0.51$. None of the effects was significant ($p > 0.12$).

4.2. Threat of immigrants

We performed a hierarchical linear regression with trait EI, negative emotion, and their interaction added to the model in the first block

Fig. 2. Interaction between trait EI and negative emotion (median split for ease of representation) predicting people's perception of threat posed by immigrants (left panel) and willingness to accept them (right panel).

($R^2 = 10.5\%$) and demographic information added in the second block to check for robustness ($R^2 = 31.5\%$). The results for the first block revealed a significant effect of negative emotion, $B = 3.06$ ($\beta = 1.39$), $SE = 1.40$, $t = 2.19$, $p < 0.05$, 95% CI [0.300, 5.813], whereas the effect of trait EI was not statistically significant, $B = 0.92$ ($\beta = 0.55$), $SE = 0.69$, $t = 1.34$, $p = 0.18$, 95% CI [-0.436, 2.294]. The interaction between negative emotion and trait EI was significant, $B = -0.02$ ($\beta = -0.01$), $SE = 0.009$, $t = -2.12$, $p < 0.05$, 95% CI [0.037, 0.001], showing that respondents with high (vs. low) trait EI felt less threatened by immigrants when terrorist attacks induced them to experience strongly negative emotion (Fig. 2, left panel). Adding demographic information in the second block significantly improved the model, $F(4, 193) = 16.07$, $p < 0.0001$, and showed a significant effect of political orientation, $B = 13.09$ ($\beta = 0.41$), $SE = 1.94$, $t = 6.73$, $p < 0.0001$, 95% CI [9.254, 16.920], with right-wing individuals being particularly threatened by immigrants, whereas the effects of gender, age, and religiosity were not significant, $p > 0.07$. Importantly, the interaction between negative emotion and trait EI remained significant, $B = -0.02$ ($\beta = -0.01$), $SE = 0.01$, $t = -2.59$, $p < 0.05$, 95% CI [-0.037, -0.005].

4.3. Acceptance of immigrants

We performed a hierarchical linear regression with trait EI, negative emotion, and their interaction added to the model in the first block ($R^2 = 17.4\%$) and demographic information added in the second block to check for robustness ($R^2 = 33.7\%$). The results for the first block revealed a significant effect of negative emotion, $B = -5.11$ ($\beta = -2.25$), $SE = 1.38$, $t = -3.69$, $p < 0.001$, 95% CI [-7.836, -2.381], and trait EI, $B = -1.77$ ($\beta = -1.01$), $SE = 0.69$, $t = -2.58$, $p = 0.01$, 95% CI [-3.118, -0.416]. These effects were qualified by a significant interaction between negative emotion and trait EI, $B = 0.03$ ($\beta = 0.02$), $SE = 0.009$, $t = 3.41$, $p < 0.001$, 95% CI [0.013, 0.048], showing that people with high (vs. low) trait EI were more willing to accept immigrants when they experienced stronger negative emotion (Fig. 2, right panel). Adding demographic information in the second block improved the model and explained additional variance, $F(4, 193) = 13.1$, $p < 0.0001$. We found a significant effect of political orientation, $B = -12.22$ ($\beta = -0.37$), $SE = 1.97$, $t = -6.21$, $p < 0.0001$, 95% CI [-16.102, -8.334], with right-wing individuals being less likely to accept immigrants, whereas the effects of

gender, age, and religiosity were not significant, $p > 0.10$. Importantly, the interaction between negative emotion and trait EI was still significant, $B = 0.03$ ($\beta = 0.01$), $SE = 0.01$, $t = 3.82$, $p < 0.001$, 95% CI [0.015, 0.047].

Finally, an additional regression analysis revealed that the threat posed by immigrants and the likelihood of future attacks predicted respondents' willingness to accept immigrants coming to their country. However, the interaction between negative emotion and trait EI remained statistically significant.⁴

Some of our dependent variables were correlated; thus, one can argue that we assessed a single dimension (e.g., people's feelings of uncertainty or vulnerability). Thus, we conducted a factor analysis with varimax rotation (see Supplementary Materials) that revealed two factors: perceived threat, composed of all variables related to people's perceived threats to their job, safety, religious identity, and culture as well as their acceptance of immigrants (54% of variance explained); and perceived likelihood of attack, composed of the three questions assessing the perceived likelihood of a terrorist attack in Europe, Italy, and Padova (23% of variance explained). We wish to point out that accepting immigrants and being afraid of them do not necessarily measure the same psychological construct, at least in our context, and the items that we devised for our survey do not rely on any specific framework that would suggest so. Although we found a significant interaction between negative emotion and trait EI on the perceived threat factor, $B = -0.02$ ($\beta = -0.01$), $SE = 0.009$, $t = -2.70$, $p < 0.01$, 95% CI [-0.040, -0.006], we urge caution when interpreting these results.

Regarding the overall estimate of the likelihood of attack, we opted not to examine the aggregate rating and instead focused on the three locations separately for a number of reasons. First, the perceived likelihood of attack varied significantly between the three locations, and these locations have different characteristics (proximity, familiarity, and size). The second reason was because of the specific population that we sampled, and finally, we made predictions about the different roles

⁴ We found a significant effect of threat, $B = -0.70$ ($\beta = -0.68$), $SE = 0.05$, $t = -13.35$, $p < 0.0001$, 95% CI [-0.807, -0.599], and of the overall likelihood of an attack, $B = -0.27$ ($\beta = -0.12$), $SE = 0.12$, $t = -2.31$, $p < 0.05$, 95% CI [-0.503, -0.040]. The effects of trait EI, negative emotion, and the interaction were still significant ($ps < 0.05$) and in the same direction as in the "Acceptance of immigrants" section.

of emotion across Padova, Italy, and Europe. Taking these points into account, we cannot assume that the psychological processes that lead people to make inferences about attacks in any European city are necessarily the same that play out when they estimate the likelihood of an attack in the local town.

5. Discussion

We investigated how people living in a small town in Northern Italy reacted to the negative emotions elicited by terrorist attacks. We studied how such emotions shaped their estimates of the likelihood of future attacks and their perceptions of immigrants. We found that stronger negative emotions corresponded to the belief that an attack would be more imminent in their hometown, whereas this did not occur for larger locations (Italy and Europe). One possible explanation is that imagining an attack in a familiar place like one's town is associated with strong emotional reactions and corresponds with estimating a greater likelihood of an imminent attack. Relatedly, we found that negative emotion was associated with people's perceptions of immigrants as dangerous individuals as well as a lower willingness to accept them into the country. Importantly, these reactions were more pronounced for people with low (vs. high) trait EI. This finding shows that negative emotion corresponds to more negative views and reactions among individuals who cannot successfully recognize or use emotional information. Importantly, conducting separate analyses using the four subscales of trait EI largely replicated the present results (see Supplementary Materials).

Importantly, we did not find a significant correlation between trait EI and negative emotion. This means that people with high and low trait EI experienced emotions to the same extent, which therefore highlights the unique contribution of these two variables in shaping people's opinions about attacks and immigration.

In our study, we explore the role of trait EI in reactions to terrorism for the first time. This is important because most of the work to date has investigated how specific emotions influence reactions to attacks (Lerner et al., 2003) but has paid relatively less attention to individual differences that make people more (or less) impacted by their emotions. Measuring trait EI allowed us to examine how people react differently to the same attacks but did not reveal which specific strategy they used (Gross, 2002). This can open up interesting avenues, since individuals with high trait EI possess a variety of strategies that are worth exploring (Peña-Sarrionandia et al., 2015).

Our work has some limitations. One is the cross-sectional nature of the design, which does not allow for inferring causality. In other words, it could be that being asked about attacks or immigrants triggered negative emotions. While we do acknowledge this possibility, we wish to point out that we followed the same procedure as in previous studies (Lerner et al., 2003), in which the respondents were first asked to think about terrorist attacks and subsequently reported their opinions regarding terrorism-related issues. However, we encourage future work to test the robustness of our findings using controlled experimental manipulations. Relatedly, although trait EI is considered a stable personality trait, it would be interesting to manipulate trait EI to examine whether people can learn to be more successful at recognizing and using their emotions when exposed to stressful situations such as terrorist attacks to be less affected by these attacks.

We focused on residents of Padova, a small town in northern Italy. While our sample was representative of the city in terms of age and gender and did not rely solely on students, we acknowledge that our findings might not apply to the Italian population as a whole. However, the number of immigrants in many Italian cities has been rapidly growing in recent years, which has been accompanied by several protests among the general population and, in part, by more rigid immigration policies. This notwithstanding, it would be interesting to explore whether different regions of Italy feel threatened by immigrants for different reasons. Similarly, we encourage researchers to extend our

work to European cities that were actually hit by attacks, to test whether emotional management processes play a similar role as in our study.

6. Conclusion

The percentage of immigrants in Europe is rapidly growing, and many more are coming to seek help and asylum. Schools, companies, and institutions are becoming very diverse in their composition. Therefore, it is crucial to understand how people perceive immigrants, especially in the aftermath of dramatic terrorist attacks that depict certain outgroup members as responsible. While immigration and terrorism represent different challenges, there seems to be a link between them, such that attitudes and reactions toward immigrants tend to be tainted by the acts of a few bad apples. Understanding how emotion affects people's perceptions of foreigners can help reduce hostility.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.paid.2017.11.036>.

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